

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 44. (Canceled)

45. (Currently Amended) An apparatus adapted to transcode an incoming bitstream coded in a first hybrid video codec to an outgoing bitstream coded in a second hybrid video codec, the apparatus comprising:

a variable length decoder having:

an input adapted to receive the incoming video bitstream;

a first output providing frequency domain image information associated with a first macroblock; and

a second output providing a plurality of first motion vectors associated with the first macroblock;

an inverse quantization unit coupled to the first output of the variable length decoder;

an inverse transform unit coupled to the inverse quantization unit;

a summation unit coupled to the inverse transform unit;

a switch coupled to the summation unit and the inverse transform unit and adapted to output non-motion compensated spatial image information associated with the first macroblock;

a frame storage unit coupled to the switch;

a conversion unit coupled to the ~~variable length decoder~~ switch, the conversion unit comprising:

a processing unit adapted to provide spatial image information associated with a second macroblock as a function of the non-motion compensated spatial image information associated with the first macroblock independent of the plurality of first motion vectors associated with the first macroblock;

a motion vector conversion unit adapted to convert the plurality of first motion vectors into a plurality of second motion vectors associated with the second macroblock;
and

a variable length encoder coupled to the motion vector conversion unit, ~~the variable length encoder having:~~

~~a first input adapted to receive the image information associated with the second macroblock;~~

~~a second input adapted to receive the plurality of second motion vectors;~~
and

~~an output providing the outgoing bitstream.~~

46. (Currently Amended) The apparatus of claim 45 wherein the plurality of second motion vectors are the same as the plurality of first motion vectors the variable length encoder unit comprises:

a first input adapted to receive quantized frequency domain image information associated with the second macroblock;

a second input adapted to receive the plurality of second motion vectors; and
an output providing the outgoing bitstream.

47. (Previously Presented) The apparatus of claim 45 wherein the first hybrid video codec and the second hybrid video codec support different numbers of motion vectors per macroblock and a number of motion vectors supported by the second hybrid video codec is allowed by the second hybrid video codec.

48. (Previously Presented) The apparatus of claim 47 wherein converting the plurality of first motion vectors into the plurality of second motion vectors comprises:

replicating the plurality of first motion vectors to produce the plurality of second motion vectors if the second hybrid video codec supports more motion vectors per macroblock than a number of motion vectors per macroblock supported by the first hybrid video codec; and

combining the plurality of first motion vectors to produce the plurality of second motion vectors if the second hybrid video codec supports fewer motion vectors per macroblock than the number of motion vectors per macroblock supported by the first hybrid video codec.

49. - 55. (Canceled)

56. (Previously Presented) The apparatus of claim 45 wherein:

the image information associated with the first macroblock encodes a first portion of a first frame comprising a first frame size;

the image information associated with the second macroblock encodes a second portion of a second frame comprising a second frame size;

the first frame size is not supported by the second hybrid video codec, and

converting the plurality of first motion vectors into a plurality of second motion vectors comprises:

determining the second frame size to be a smallest frame size allowed by the second hybrid video codec that is larger than the first frame size;

centering the second frame on the first frame; and

for areas of the second frame that lie outside a boundary defined by the first frame size, coding a suitable background color if the first frame is an I frame and coding as not coded macroblocks if the first frame is a P frame.

57. (Previously Presented) The apparatus of claim 45 wherein:

the image information associated with the first macroblock encodes a first portion of a first frame comprising a first frame size;

the image information associated with the second macroblock encodes a second portion of a second frame comprising a second frame size;

the first frame size is not supported by the second hybrid video codec, and

converting the plurality of first motion vectors into a plurality of second motion vectors comprises:

determining the second frame size to be a largest frame size allowed by the second hybrid video codec that is smaller than the first frame size;

centering the second frame on the first frame; and
cropping the first frame to produce the second frame, ignoring any
macroblocks in first the frame that lie outside the boundary defined by the second frame size.

58. (Previously Presented) The apparatus of claim 45 wherein the plurality of second motion vectors are associated with a most recent decoded frame and the first hybrid video codec supports P frames that do not reference the most recent decoded frame and the second hybrid video codec supports P frames that reference the most recent decoded frame, the apparatus further adapted to process the plurality of first motion vectors, wherein the conversion unit is further adapted to scale the plurality of second motion vectors to reference the most recent decoded frame.

59. (Previously Presented) The apparatus of claim 58 wherein scaling the plurality of second motion vectors comprises dividing each component of the plurality of first motion vectors by the number of skipped reference frames plus one to produce the plurality of second motion vectors.

60. (Previously Presented) The apparatus of claim 45 wherein the conversion unit is adapted to convert a P frame encoded in part by the first image information to an I frame encoded in part by the second image information to correct for drift.

61. (Previously Presented) The apparatus of claim 45 wherein the conversion unit is further adapted to convert a P frame encoded in part by the first image information to an I frame encoded in part by the second image information to remain in conformance with a standard associated with the second hybrid video codec.

62. (Previously Presented) The apparatus of claim 61 wherein the standard is ITU-T Recommendation H.263 and the I frame is encoded if no I frame has been encountered associated with the first image information for a pre-determined number of frames.

63. (Previously Presented) The apparatus of claim 62 wherein the pre-determined number of frames is 131.